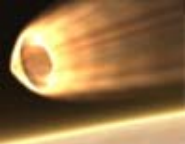


Venus Mission: lander & balloon exploration **Strawman Payload Options**

Geoffrey A. Landis

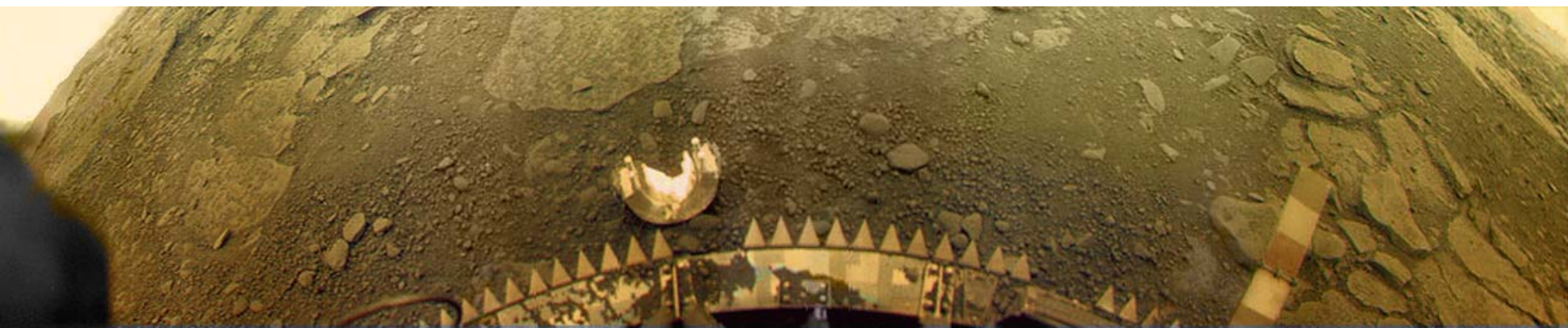
NASA John Glenn Research Center
Cleveland, OH





Strawman Payload Options: Surface Experiments

- Surface Panoramic Imaging
 - Visible
 - IR
 - Spectrophotometric mineral identification
- Surface composition
 - Alpha-particle X-ray Spectroscopy (APXS; XRFS)
 - Raman
 - LIBS
 - X-Ray Diffraction mineralogy
 - Mass Spectrometry
 - Mössbauer spectroscopy (iron mineralogy)
- Rock surface chemistry (analysis of surface and interior of rock)
- Seismometer
- Radio geodesy (Ultra-stable oscillator)
- Close-up / microscopic imaging (surface fines; petrography, stratigraphy)
- Meteorology
 - Atmospheric Pressure, Temperature, Wind speed & direction



Strawman Payload Options: Balloon Experiments



- Geological Surface Imaging
 - Visible, near IR, thermal IR
 - Spectrophotometry
- Location (altitude, position, velocity)
- Atmospheric Composition
 - Isotopic analysis (e.g., D/H ratio, $^{15}\text{N}/^{14}\text{N}$, Argon)
 - Trace composition (Sulfates, nitrogen compounds)
 - Aerosol density (e.g., Nephelometer / LIDAR)
- Meteorology:
 - Atmospheric Pressure, Temperature, wind
- Ground-penetrating radar
- Precision gravimetry

